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AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method for analyzing a loop interface failure comprising:
 - detecting whether abnormalities occur in first and second loop interfaces which are multiplexed and to which devices are connected;
 - detecting whether receptions of commands have ceased in one of the first and second loop interfaces, which commands are regularly transmitted through the first and second loop interfaces to which the devices are connected;
 - informing the other of the first and second loop interfaces that the receptions of the commands have ceased; and
 - when the abnormalities are detected in both the first and second loop interfaces, detaching all devices connected to at least one of the first and second loop interfaces.
2. (Currently amended) The method for analyzing a loop interface failure as claimed in claim 1, wherein the detecting whether abnormalities occur in the first and second loop interfaces comprises:
 - ~~detecting whether receptions of commands have ceased in one of the first and second loop interfaces, which commands are regularly transmitted through the first and second loop interfaces to which the devices are connected;~~
 - ~~informing the other of the first and second loop interfaces that the receptions of the commands have ceased; and~~
 - when receptions of the commands have ceased in both the first and second loop interfaces, indicating that abnormalities occur in the first and second loop interfaces.
3. (Previously presented) The method for analyzing a loop interface failure as claimed in claim 1, further comprising performing a loop diagnosis for identifying a faulty device by accessing one of the first and second loop interfaces, in which all of the devices were detached from the loop interface, from the other loop interface.

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4. (Previously presented) The method for analyzing a loop interface failure as claimed in claim 3, further comprising:

when the loop abnormalities occur in all of the multiplexed loop interfaces, judging whether the loop abnormality is resolved in a certain period of time;

when the loop abnormalities were resolved in the certain period of time, inquiring disk controlling means whether they detached all of the devices; and

when all of the devices were detached by the disk controlling means, performing countermeasure processing against a double-route link failure including performing loop diagnosis.

5. (Previously presented) The method for analyzing a loop interface failure as claimed in claim 4, wherein the certain period of time is longer than a period of time necessary for the disk controlling means to detach all of the devices when the loop abnormalities occur in all of the multiplexed loop interfaces.

6. (Original) The method for analyzing a loop interface failure as claimed in claim 3, wherein a device determined as faulty in the loop diagnosis is detached from the loop interface, and the loop interface is to be in use again.

7. (Previously presented) The method for analyzing a loop interface failure as claimed in claim 6, wherein the loop diagnosis for identifying a faulty device is performed by accessing disk controlling means connected to one of the loop interfaces via the disk controlling means connected to the loop interface which is in use again.

8. (Previously presented) A computer program tangibly embodied on a computer readable medium, said program enabling a computer to execute the method of claim 1.

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9. (Currently amended) A computer-readable storage medium recording thereon a program which causes a computer to ~~perform said steps of claim 1~~ execute each means as claimed in claim 10.

10. (Currently amended) A system for analyzing a loop interface failure comprising:
first and second loop connection switching means for connecting and detaching devices to and from respective first and second multiplexed loop interfaces;
first and second disk controlling means for controlling the first and second loop connection switching means; and
a first communication means for transmitting and receiving data between the first and second disk controlling means;
wherein the first and second disk controlling means each have, when detecting that abnormalities occur in all of the loop interfaces, functions of outputting to the first and second loop connection switching means instructions to detach all devices connected to either one of the first and second loop interfaces; and
wherein either of the first and second disk controlling means, when detecting that receptions of commands have ceased, which commands are regularly transmitted through the first and second loop interfaces to which the devices managed by the first and second disk controlling means are connected, inform via the first communication means to the other disk controlling means that the receptions of the commands have ceased.

11. (Currently amended) The system for analyzing a loop interface failure as claimed in claim 10, ~~wherein either of the first and second disk controlling means, when detecting that receptions of commands have ceased, which commands are regularly transmitted through the first and second loop interfaces to which the devices managed by the first and second disk controlling means are connected, inform via the first communication means to the other disk controlling means that the receptions of the commands have ceased, and~~ when detecting that receptions of commands have ceased in all disk controlling means, detect that abnormalities occur in all of the loop interfaces.

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12. (Previously presented) The system for analyzing a loop interface failure as claimed in claim 10, wherein each of the first and second disk controlling means comprises loop diagnostic means for performing a loop diagnosis to identify a faulty device by accessing the other loop interface via the first communication means and the other disk controlling means, devices connected to the other loop interface having been detached so that the detected loop abnormality has been resolved.

13. (Previously presented) The system for analyzing a loop interface failure as claimed in claim 12, wherein the loop diagnostic means detaches a device determined as faulty in the loop diagnosis from the other loop interface so as to allow the other loop interface to be in use again.

14. (Previously presented) The system for analyzing a loop interface failure as claimed in claim 13, wherein the loop diagnostic means is arranged to perform the loop diagnosis for identifying a faulty device by accessing the loop interface which is in use again.

15. (Previously presented) The system for analyzing a loop interface failure as claimed in claim 10, further comprising:

first and second enclosure service means, each of which connects to the respective disk controlling means and to the devices through one loop interface of the multiplexed loop interfaces; and

a second communication means for transmitting and receiving data between the loop interfaces;

wherein either of the first and second enclosure service means controls the loop connection switching means when abnormalities are detected in all of the loop interfaces so as to detach all devices connected to either loop interface.

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16. (Previously presented) The system for analyzing a loop interface failure as claimed in claim 15, wherein each of the enclosure service means comprises, when detecting that a reception of commands has ceased, which commands are regularly transmitted through a loop interface to which devices managed by the enclosure service means are connected, means for informing via the second communication means to the other enclosure service means that the reception of commands has ceased, and when detecting that receptions of commands have ceased in all of the enclosure service means, detects that abnormalities occur in all of the loop interfaces.

17. (Previously presented) The system for analyzing a loop interface failure as claimed in claim 15, wherein each of the enclosure service means, when the loop abnormalities occur in all of the multiplexed loop interfaces managed by the enclosure service means, judge whether the loop abnormalities are resolved in a certain period of time, and when the loop abnormalities were resolved in the certain period of time, inquires the first and second disk controlling means whether they detached all of the devices, and when all of the devices are detached by the disk controlling means, performs countermeasure processing against a double-route link failure including a loop diagnosis.

18. (Previously presented) The system for analyzing a loop interface failure as claimed in claim 17, wherein the certain period of time is longer than a period of time necessary for the first and second disk controlling means to detach all of the devices when the loop abnormalities occur in all of the multiplexed loop interfaces.

19. (Previously presented) The system for analyzing a loop interface failure as claimed in claim 10, wherein the loop interface comprises a Fibre Channel Arbitrated Loop (FC-AL).

20. (Previously presented) The system for analyzing a loop interface failure as claimed in claim 10, wherein the devices comprise hard disk devices.

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21. (Previously presented) The system for analyzing a loop interface failure as claimed in claim 10, wherein each of the disk controlling means monitors abnormalities in a plurality of loop interfaces.

22. (Previously presented) The system for analyzing a loop interface failure as claimed in claim 15, wherein each of the enclosure service means monitors abnormalities in a plurality of loop interfaces.

23. (Currently amended) A disk unit device, comprising:

first and second enclosure service means for connecting to a disk controlling means;
first and second loop connection switching means connected to a respective enclosure service means; and

devices whose connections to first and second loop interfaces are controlled by respective loop connection means;

wherein the enclosure service means are arranged to communicate with each other, and to control the loop connection switching means when abnormalities are detected in all of the loop interfaces so as to detach all devices connected to at least one of the loop interfaces; and

when detecting that a reception of commands has ceased, which commands are regularly transmitted through the first and second loop interface to which devices managed by the enclosure service means are connected, means for informing via the other loop interface to the other enclosure service means that the reception of commands has ceased.

24. (Previously presented) The disk unit device as claimed in claim 23, wherein each of the enclosure service means comprises:

~~when detecting that a reception of commands has ceased, which commands are regularly transmitted through the first and second loop interface to which devices managed by the enclosure service means are connected, means for informing via the other loop interface to the other enclosure service means that the reception of commands has ceased; and~~

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when detecting that receptions of commands have ceased in all of the enclosure service means, means for informing that abnormalities occur in all of the loop interfaces.

25. (Previously presented) The disk unit device as claimed in claim 23, wherein each loop interface comprises a Fibre Channel Arbitrated Loop (FC-AL).

26. (Previously presented) The disk unit device as claimed in claim 23, wherein the devices comprise hard disk devices.

27. (Previously presented) A computer program tangibly embodied on a machine readable medium that instructs a computer to execute each means as claimed in claim 23.